Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) An integrated optical time division multiplexing (OTDM) module comprising:

an integrated modulator chip for generating at least first and second optical Return-to-Zero signal streams; and

an integrated time-delay chip coupled to the integrated modulator chip for introducing a prescribed optical delay between the at least first and second optical Return-to-Zero signal streams and for combining the at least first and second optical Return-to-Zero signal streams after introduction of the prescribed delay, the integrated time-delay chip including a plurality of waveguides formed on a substrate of the integrated time-delay chip for introducing an optical delay and operable to guide the at least first and second optical Return-to-Zero signal streams through the integrated time-delay chip,

where the integrated time-delay chip is operable to combine the at least first and second optical Return-to-Zero signal streams including interleaving the plurality of waveguides on the integrated time-delay chip.

2. (Original) An integrated OTDM module according to claim 1 wherein the integrated modulator chip is a twin-modulator chip.

3. (Previously Presented) An integrated OTDM module according to claim 1 wherein the integrated time-delay chip introduces a fixed optical time delay between said first and second optical Return-to-Zero signal streams.

4. (Previously Presented) An integrated OTDM module according to claim 1 wherein the integrated time-delay chip introduces a tunable optical time delay between said first and second optical Return-to-Zero signal streams.

5. (Currently Amended) An integrated OTDM module according to claim 1 wherein the integrated time-delay chip comprises first and second waveguides for receiving said first and second optical Return-to-Zero signal streams from said integrated modulator chip, one of said first and second waveguides being of greater length than other of said first and second waveguides and both first and second waveguides being integrated within the ~~fixed~~ integrated time-delay chip.

6. (Currently Amended) An integrated OTDM module according to claim 5 wherein an electrode is deposited over a portion of said first or second waveguide of the integrated time-delay chip that is greater in length, wherein a voltage applied to the electrode is used for fine tuning the optical time delay introduced by the integrated time-delay chip.

7. (Original) An integrated OTDM module according to claim 1 wherein an epoxy is used to couple optically and mechanically the integrated modulator chip to the integrated time-delay chip.

8. (Original) An integrated OTDM module according to claim 1 wherein an optical refractive index matching layer is used to couple optically and mechanically the integrated modulator chip to the integrated time-delay chip.

9. (Original) An integrated OTDM module according to claim 7 wherein the epoxy has a refractive index n, the integrated modulator chip has a refractive index n1, the integrated time-delay chip has a refractive index n2 and wherein the refractive index n of the epoxy is defined by $n1 < n < n2$.

10. (Original) An integrated OTDM module according to claim 8 wherein the optical refractive index matching layer has a refractive index n, the integrated modulator chip has a refractive index n1, the integrated time-delay chip has a refractive index n2 and wherein the refractive index n of the optical refractive index matching layer is defined by $n1 < n < n2$.

11. (Original) An integrated OTDM module according to claim 1 wherein the integrated modulator chip has a refractive index n1 and an optical mode field diameter OMFD1, the integrated time-delay chip has a refractive index n2 and an optical mode field diameter OMFD2 and wherein the refractive index n1 and optical mode field diameter OMFD1 of the integrated modulator chip is substantially similar to the refractive index n2 and optical mode field diameter OMFD2 of the integrated time-delay chip .

12. (Original) An integrated OTDM module according to claim 1 wherein collimating lenses are used to couple the integrated modulator chip to the integrated time-delay chip.

13. (Previously Presented) An integrated OTDM module according to claim 1 wherein the prescribed optical delay introduced between the first and second optical Return-to-Zero signal streams is approximately one half the period of each of the first and second optical Return-to-Zero signal streams.

14. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising:

~~the~~ an integrated modulator chip ~~comprises~~ including an input fiber tube for receiving an end portion of an input fiber, first and second modulators each connected on input ends thereof to the input fiber tube and on output ends thereof to respective first and second variable optical attenuators, ~~said~~ the first and second variable optical attenuators having respective first and second outputs coupled to an input end of ~~said~~ an integrated time-delay chip; and

the integrated time-delay chip ~~comprises~~ including first and second waveguides, formed on a substrate of the integrated time-delay chip and operable to guide ~~the~~ a first and second optical Return-to-Zero signal streams through the integrated time-delay chip, for receiving said respective first and second outputs of said first and second variable optical attenuators of the integrated modulator chip, one of ~~said~~ the first and second waveguides being of greater length than the other of ~~said~~ the first and second waveguides, the integrated time-delay chip further comprising an output fiber tube for securing an end portion of an output fiber,

where the integrated time-delay chip is operable to combine the ~~at least~~ first and second optical Return-to-Zero signal streams including interleaving the ~~plurality of~~ first and second waveguides on the integrated time-delay chip.

15. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising:

~~the~~ an integrated modulator chip ~~comprises~~ including an input fiber tube for receiving an end portion of an input fiber, first and second modulators each connected on input ends thereof to the input fiber tube and on output ends thereof to respective first and second variable optical attenuators, ~~said~~ the first and second variable optical attenuators having respective first and second outputs coupled to an input end of ~~said~~ an integrated time-delay chip; and

~~the~~ an integrated time-delay chip ~~comprises~~ including first and second waveguides formed on a substrate of the integrated time-delay chip and operable to guide the first and second optical Return-to-Zero signal streams through the integrated time-delay chip, for receiving said respective first and second outputs of ~~said~~ the first and second variable optical attenuators of the integrated modulator chip, one of ~~said~~ the first and second waveguides being of greater length than the other of said first and second waveguides, the integrated time-delay chip further comprising an output fiber tube for securing an end portion of an output fiber.

16. (Previously Presented) An integrated optical time division multiplexing (OTDM) module comprising an integrated time-delay chip coupled to an integrated modulator chip via collimating lenses wherein:

the integrated time-delay chip comprises an input fiber tube for receiving an end portion of an input fiber carrying an input optical signal stream, the integrated time-delay chip further comprising first and second waveguides, formed on a substrate of the integrated time-delay chip, each waveguide carrying an optical signal stream derived from the input optical signal stream and wherein one of said first and second waveguides is greater in length than the other of said first and second waveguides for providing a delay between the first and second optical signal streams, the first and second waveguides used for delivering the optical signal streams to the integrated modulator chip; and

the integrated modulator chip comprises first and second waveguides for receiving the optical signal streams from the integrated time-delay chip, the integrated modulator chip further comprising first and second variable optical attenuators each connected on output ends thereof to respective first and second modulators and wherein an end facet of the integrated modulator chip is coated with a highly reflective coating.

17. (Previously Presented) An integrated optical time division multiplexing (OTDM) module comprising:

an integrated time-delay chip adapted to receive an incoming short-pulse signal stream from a pulsed source, the integrated time-delay chip comprising first and second waveguides formed on a substrate of the integrated time-delay chip for guiding the signal streams through the integrated-time delay chip and adapted to divide the incoming short-pulse signal stream into first and second short-pulse signal streams for transmission along the first and second waveguides of integrated time-delay chip, one of the first and second waveguides being of greater length than other of the first and second waveguides thereby introducing a prescribed optical delay between the first and second short-pulse signal streams; and

an integrated modulator chip coupled to the integrated time-delay chip, the integrated modulator chip comprising first and second waveguides and adapted to receive the first and second short-pulse signal streams from the integrated time-delay chip and to generate first and second optical Return-to-Zero signal streams from the first and second short-pulse signal streams, wherein an end facet of the integrated modulator chip is coated with a reflective coating to reflect the first and second optical Return-to-Zero signal streams along the first and second waveguides of the integrated modulator chip towards the first and second waveguides of the integrated time-delay chip.

18. (Currently Amended) An integrated optical time division multiplexing (OTDM) module comprising:

an integrated modulator chip for generating a plurality of optical Return-to-Zero signal streams; and

an integrated time-delay chip coupled to the integrated modulator chip for introducing prescribed optical time delays between each of the plurality of optical Return-to-Zero signal streams and for combining said plurality of optical Return-to-Zero signal streams after introduction of the prescribed delays, the integrated time-delay chip including a plurality of waveguides formed on a substrate of the integrated time-delay chip for introducing an optical delay and operable to guide the plurality of optical Return-to-Zero signal streams through the integrated time-delay chip,

where the integrated time-delay chip is operable to combine the ~~at least first and second~~ plurality of optical Return-to-Zero signal streams including interleaving the plurality of waveguides on the integrated time-delay chip.

19. (Previously Presented) The integrated optical time division multiplexing (OTDM) module of claim 14, further comprising an integrated modulator chip coupled to an integrated time-delay chip via an optical refractive index matching layer.

20. (Previously Presented) The integrated optical time division multiplexing (OTDM) module of claim 15, further comprising an integrated modulator chip coupled to an integrated time-delay chip via collimating lenses.